

The Space Place Reports

Issue No. 10, December 2004
Covering May - November 2004

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NASA Outreach Your Way

The Space Place is a multi-faceted NASA outreach program. It creates unique educational products in a variety of media for a broad range of audiences and distributes them via a highly leveraged and diverse network of partnerships. NASA's New Millennium Program started The Space Place effort in 1998 and invites all NASA missions and enterprises to participate.

New Online Products

The Space Place Web site (spaceplace.nasa.gov) is the main entrée on the program's menu of outreach products. Designed and written for elementary school-aged kids, it offers up informal, yet meaty helpings of hands-on projects, interactive games, animations, and amazing facts about space and Earth science and technology. With over 100 different fun learning modules for kids, it also offers resources for teachers, including a gallery of high-resolution images to use in the classroom and original Space Place classroom activity articles previously published by the International Technology Education Association.

New pages added to the Web site during this reporting period include . . .

- Two new "Space Place Live!" talk show episodes. Space Place Live! is a cartoon talk show, hosted by Space Place characters Kate and Carlos. They have as their guests real NASA scientists and engineers (their cartoon alter-egos, but with their real voices), who talk about their projects, why they like their jobs, and what they do for fun. The intention of the talk show is to present scientists and engineers as role models and reveal their warmth, humanity, and passion for life and their work. The newly featured role models are Ms. Deborah Vane, Deputy Principal Investigator for the **CloudSat** mission, and Dr. Chris Martin, Principal Investigator for the **GALEX** mission.
- Besides the new Space Place Live! episodes added to the Web site, an additional episode is available for viewing on NASA TV. The guest on this show is Dr. Karsten Danzmann, Principal Investigator on the **LISA** project with the European Space Agency.
- Keeping with the "Space Place TV" metaphor is the Earth Sciences Quiz Show, sponsored by the **Earth Observing 1** mission. Again, Space Place cartoon kids Kate and Carlos take turns in the hot seat, and the Web visitor helps them with a fun, multiple choice quiz about Earth.
- And keeping with the Earth-from-space theme, "Migration Concentration" is a memory game in which the visitor matches cartoon image pairs of representatives of endangered species. This activity, sponsored by the **NOAA GOES/POES** environmental satellite project, explains how these satellites are used in tracking and gathering information about endangered animal species, with snapshot images and facts given about several endearing examples. This activity was also translated into Spanish for The Space Place en español version of the site.

- The **GALEX** project sponsored a new hands-on activity, "Make a Galaxy Montage." Along with the instructions for the art project, some of the new UV images from GALEX are shown juxtaposed with visible light images. They are captioned with simple explanations of why they look different and what GALEX is revealing about the evolution of galaxies. This activity was also translated into Spanish for The Space Place en español version of the site.

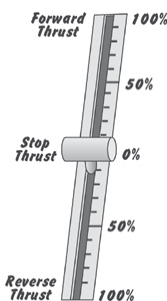


- Stardust** has sponsored its second activity on The Space Place, this time a rhyming story (à la Dr. Seuss) titled "Ode to Aerogel" about this strange substance and how mission designers selected and tested it as the medium for bringing comet dust samples home to Earth from Comet Wild 2. Visitors to the page hear the poem read aloud, while they follow the online text and look at pictures of aerogel.

New Resources for Teachers

The Space Place has begun its seventh academic year partnering with the International Technology Education Association to bring new technology-related classroom activity articles to its 6000 member educators. Targeting middle-school students and their teachers, each of these articles is sponsored by a NASA mission and focuses on some aspect of space or Earth science or technology related to that mission. This period, the following articles were published in ITEA's member journal, *The Technology Teacher*.

- Space Technology 7** sponsored "Dampen That Drift," published in the May/June 2004 issue. The article explains the disturbance reduction system technology being validated by this mission. The activity introduces vectors and how to add and subtract them. It takes a very conceptual approach, without using geometry, algebra, or trigonometry.
- Earth Observing 1** sponsored "Teaching Machines to Think Fuzzy," published October 2004. The article explains the difference—or at least one of them—in how humans think and how machines think. It then tells a story, inviting participation, about how to teach a computer—or a robot—to solve problems the way people do.



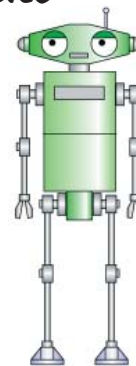
These articles are also archived, with educator-oriented summaries, on The Space Place Web site in the "Teacher's Corner."

ITEA also publishes *Technology and Children* for elementary school teachers. The Space Place also contributes to this publication. New articles published are

- "Teaching Machines to Think Fuzzy," sponsored by **Earth Observing 1** and published in the August/September issue. Although given the same name as the classroom activity article mentioned before, this article is a much shorter and simpler treatment of fuzzy logic.
- "A Summer Vacation Tracking Down UFOs," sponsored by **MISR** (Multi-angle Imaging SpectroRadiometer), is about a high school student who worked with the project during the summer to investigate the "unidentified flashing objects" in some of the MISR images. This article will appear in the December/January issue.

Recognition for Curriculum Articles

NASA's Robotics Curriculum Clearinghouse has selected the article, "System Engineering a Robot" for inclusion on its Web site collection (see <http://www.robotics.nasa.gov/rcc>). This article, sponsored by the New Millennium Program **Space Technology 6** project, is one of The Space Place classroom activity articles previously published by the International Technology Education Association in its journal, *The Technology Teacher*.



Under the auspices of NASA's agency-wide Robotics Education Project (REP), the mission of the NASA RCC is to disseminate "high-quality robotics curricula to educators everywhere, all the time," offering educators an online collection of featured robotics curricula ranging from full courses to single lesson plans that can be readily incorporated into classroom activities.

The article is also available on The Space Place Web site's Teacher's Corner at http://spaceplace.nasa.gov/en/educators/st6_sw_systems.pdf.

Another of the ITEA-published classroom activity articles was used in an event held at the Houston Challenger Center, located at the Houston Museum of Natural Science. The event, held February 11, 2004 (but not previously reported in this newsletter), hosted for a large class of middle schools, simulated a mission from the Moon to Mars. Part of the preparation was a short unit explaining how space navigation systems operate. The article "Navigating by Good Gyration," whose development was sponsored by the New Millennium Program's Space Technology 6 Inertial Stellar Compass (ST6 ISC) project, was used to help explain gyroscopic effect. Harvin Moore of Celestis Inc. (on whose spacecraft the ST6 ISC instrument was tested) helped organize the Challenger Center event. He writes "I wanted you to know that your curriculum unit was a great success during our event at the Challenger Center recently."

The curriculum was also included on a CD of other classroom activities distributed to participating classrooms.

The Spanish Connection

Another educator partnership The Space Place maintains is with the National Association of Bi-lingual Educators, NABE. The Space Place contributes English and Spanish versions of articles for each of NABE's six annual issues of *NABE News* for its members. This period, NABE has published

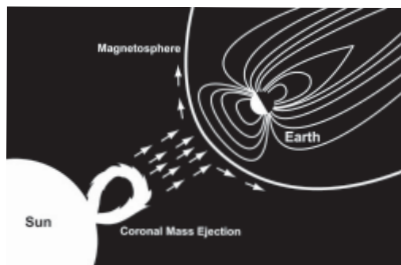
- "Tracking Our Furred and Feathered Friends" ("Rastreando a nuestros amigos con piel y plumas"), sponsored by the NOAA GOES/POES mission, was published in August.
- "Teaching Machines to Think Fuzzy" ("Enseñando a las máquinas a pensar difusamente"), sponsored by **Earth Observing 1**, was published in October.
- "A Summer Vacation Chasing Down UFO's" ("Vacaciones de verano rastreando objetos voladores no identificados [UFOs]"), sponsored by **MISR**, will be published in December.



Space News for Kids

The Space Place also partners with seven English and seven Spanish language newspapers, providing monthly original articles for their children's pages. These are the stories we've reported lately:

- May: "Grandpa's in the Principal's Office," a mini-profile of Dr. Chris Martin, the principal investigator for **GALEX**, and his joy at seeing his dreams come true with the success of his mission.
- June: "Teaching Machines to Think Fuzzy," introducing the concept of fuzzy logic and its use in **Earth Observing 1**.
- July: "Waiting for Cassini's Safe Arrival Call," about the **Deep Space Network's** role in Cassini's critical Saturn Orbit Insertion maneuver.
- August: "Solar Hiccup Means Stormy Weather Ahead," about the effects of solar activity on space weather near Earth and human activity on Earth. This article was sponsored by the **GOES** project.



- September: "A Summer Vacation Tracking Down UFOs," sponsored by the Multi-angle Imaging SpectroRadiometer (**MISR**) mission.

- October: "Sneaky Hurricanes," sponsored by the **GOES** project about the use of weather satellites in predicting the behavior of hurricanes.
- November: "Watching a Volcano from Space," sponsored by the **ASTER** project, about the instrument's use in keeping an eye on Mt. St. Helens during its current eruption.

And Now for the Adults in Our Audience

Astronomy Clubs throughout the United States, and a few beyond, are also among the partnerships The Space Place has forged. Over 200 clubs receive monthly articles written specifically for this knowledgeable adult audience. These articles are published in the clubs' printed and online member newsletters. Enthusiastic astronomy hobbyists are highly effective mentors and motivators of young children in getting them to look up at the night sky and consider making pursuit of its mysteries their life's work. The articles we provide the clubs give not only online references for further technical and scientific details, but also suggested links to The Space Place Web site for relevant activities or explanations to assist astronomy club members in their interactions with kids.

- May: "Far-out Ideas," sponsored by the **New Millennium Program**, about how NMP selects the most probable needed technologies to validate for future use in space.
- June: "Space Weather," sponsored by **GOES**.
- July: "Waiting for Cassini's Safe Arrival Call," sponsored by the **Deep Space Network**. (Different from the newspaper article of the same name written for kids.)
- August: "Resisting Retirement: **Earth Observing-1**."
- September: "Hunting Gravitational Waves: ST7," sponsored by the **Space Technology 7** mission.
- October: "A Summer Vacation Tracking Down UFOs," sponsored by **MISR** (Multi-angle Imaging SpectroRadiometer). (Different from the newspaper article of the same name written for kids.)
- November: "Galactic Surprise," sponsored by **GALEX**.



Galaxy M81, as imaged by **GALEX** in UV (left) and by McGraw-Hill Observatory in visible light.

Taking it on the Road

The Space Place team also participates in educator and other professional conferences to further raise awareness of its offerings. Team members either establish and attend a NASA Space Place booth or present or participate in a breakout session. This period, the team participated in several events.

- **Star Partners Conference**, July 5-8, Anchorage, Alaska. The Star Partners include 200 teachers affiliated with NASA's Living with a Star Program, administered by Goddard Space Flight Center. Many of these teachers are from Puerto Rico and Spanish speaking. The Space Place presented a session on the Spanish language offerings of The Space Place program.
- **Conference of the American Association of Physics Teachers**, July 4, Sacramento, CA. The Space Place team set up and operated a booth for the LISA project, but also distributed Space Place materials.
- **Satellites and Education Conference XVII**, August 19-21, at California State University at Los Angeles. Space Place representatives set up and attended a booth introducing the Space Place program, as well as the SciJinks Weather Laboratory Web site (sponsored by NOAA GOES) for middle-school aged children.
- **National Conference of the Association of Science and Technology Centers**, September 18, San Jose, CA. Participated in a panel on space science resources for museums.

Enlisting Others for Maximum Impact

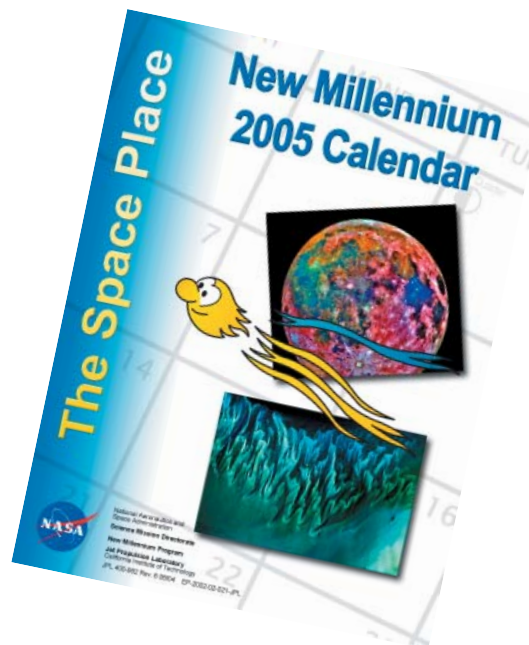
The Space Place partners with community and national organizations to reach hundreds of thousands of children and their families each year. In addition to partnering with such national organizations as the Boys & Girls Clubs, YWCA, and Civil Air Patrol, Space Place has over 280 local community affiliations. These organizations include museums, libraries, planetariums, zoos, and aquariums—most in small cities or rural areas. The Space Place gives each partner distinctive borders for a bulletin board display, and populates the display with quarterly mailings of posters, lithographs, models, and other NASA educational outreach materials.

New organizations partnering with The Space Place since May 1 include:

Birmingham Zoo, Birmingham, AL
Fernbank Science Center, Atlanta, GA
Prairie Aviation Museum, Bloomington, IL
Community Center of Leech Lake Area, Cass Lake, MN
Lodestar Astronomy Center, NW Albuquerque, NM
South Carolina State Museum, Columbia, SC
AISD Planetarium, Andrews, TX

Attending to Pressing Matters

Right on schedule, another teacher planning guide has rolled off the presses. The Space Place New Millennium Calendar for 2005 shows off another dazzling collection of space images, proudly presented by Space Place cartoon "spokes-models." Each month includes a dozen or so informative dates and fun facts, with links to relevant modules on The Space Place Web site. These calendars are distributed to all Space Place community partners (over 280 museums, libraries, military base youth centers, and planetariums), as well as at all the major educator conferences.



For more information on The Space Place outreach program, please contact

Nancy Leon
NASA New Millennium Program, JPL
4800 Oak Grove Drive, M/S 301-235
Pasadena, CA 91109-8099
Tel: (818) 354-1067
Email: nancy.j.leon@jpl.nasa.gov

JPL 410-61-10

